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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/028,750	12/20/2001	Greg J. Krawczyk	1-23350	1962

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EXAMINER

PEZZLO, BENJAMIN A

ART UNIT PAPER NUMBER

3683

DATE MAILED: 05/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/028,750

Applicant(s)

KRAWCZYK ET AL.

Examiner

Benjamin A Pezzlo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-10 and 22-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-10 and 22-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 27, 30, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Studtmann et al. (US 5110087) in view of Logie (US 4553121), Myers (US 4097833), and/or Seilly (US 4334205).

Studtmann et al. disclose a coil operated control valve (see Fig. 3) including a valve seat 295, a pole piece 214 defining at least a first pole shoulder G and a second pole shoulder F that are both stationary relative to the valve seat, an armature 220 moving a valve portion 274 relative to the valve seat to control flow of a fluid through the valve seat, the armature defining at least a first armature shoulder G, the first armature shoulder cooperating with the first pole shoulder to define a first lateral flux gap GG and a flux ring 212 mounted about a portion of the armature.

Studtmann et al. fail to disclose a second armature shoulder F, the second armature shoulder cooperating with the second pole shoulder to define a second lateral flux gap and a third lateral flux gap RR being defined between the portion of the flux ring disposed about the armature and the portion of the armature disposed in the flux ring.

Logie, Myers and Seilly disclose multiple stepped lateral flux gaps. It would have been obvious to one of ordinary skill in the art to which the invention pertains at the time the invention

was made to have included stepped lateral flux gaps according to Logie, Myers, and Seilly in a Studtmann et al. valve in order to permit high speed operation of the valve.

Re claims 30 and 31, see GG and RR.

3. Claims 6-10, 22-26, 28, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reinartz et al. (US 5503184) in view of Studtmann et al. (US 5110087), Logie (US 4553121), Myers (US 4097833), and/or Seilly (US 4334205).

Reinartz et al. disclose a coil operated control valve including a closed tube structure formed by a sleeve wherein the sleeve forms a pressure boundary about the armature, and the armature is disposed within the sleeve, and the coil is disposed outside the sleeve.

Studtmann et al. disclose a coil operated control valve (see Fig. 3) including a valve seat 295, a pole piece 214 defining at least a first pole shoulder G and a second pole shoulder F that are both stationary relative to the valve seat, an armature 220 moving a valve portion 274 relative to the valve seat to control flow of a fluid through the valve seat, the armature defining at least a first armature shoulder G, the first armature shoulder cooperating with the first pole shoulder to define a first lateral flux gap GG and a closed tube structure.

It would have been obvious to one of ordinary skill in the art to which the invention pertains at the time the invention was made to have provided the valve of Reinartz et al. with the stepped arrangement of Studtmann et al., Logie, Myers and/or Seilly in order to increase useful output force of the valve.

Re claim 7, see Fig. 3.

Re claim 8, see pin 277.

Re claim 9, see ring 212 and col. 10 lines 36-41.

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Re claim 10, see Fig. 3 of Studtmann et al.

Re claim 22, the base of Reinartz et al.'s pressure tube.

Re claim 23, that Reinartz et al.'s pressure tube in non-magnetic is implicit since a magnetic tube would disturb the magnetics of the arrangement.

Re claims 24 and 25, see Studtmann Fig. 3.

Re claim 26, see Reinartz et al.

Re claim 28, see above rejection re claim 6.

Re claim 29, see Reinartz et al.

Response to Arguments

4. Applicant's arguments with respect to claim 6 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin A Pezzlo whose telephone number is (703) 306-4617.

The examiner can normally be reached on M-F 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Lavinder can be reached on (703) 308-3421. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Benjamin A Pezzlo
5/12/04

Benjamin A Pezzlo
Examiner
Art Unit 3683

BAP
May 12, 2004